

**City of Santa Barbara**

# **Whole Foods Trip Generation and Review Traffic Analysis Study**

Prepared for the  
**City of Santa Barbara**



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Prepared by



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## Table of Contents

<b>1. SUMMARY OF RESULTS .....</b>	<b>1</b>
1.1 TRIP GENERATION SUMMARY .....	1
1.1.1 Trip Generation .....	1
1.1.2 Construction Period Parking Demand .....	1
1.2 TRAFFIC ANALYSIS RESULTS SUMMARY .....	1
<b>2. TRIP GENERATION ASSUMPTIONS.....</b>	<b>4</b>
2.1 TRIP GENERATION.....	5
2.1.1 Driveway Counts and Existing Trip Generation .....	5
2.1.2 Traffic Literature and Technical Search of Whole Foods Sites .....	5
2.1.3 Trip Generation Rate for Other Project Site Land Uses .....	6
2.3 SUMMARY OF TRIP GENERATION ASSUMPTION RECOMMENDATIONS .....	10
<b>3. CONSTRUCTION PERIOD ANALYSIS.....</b>	<b>12</b>
3.1 ANALYSIS METHODOLOGY .....	12
3.2 TRIP GENERATION AND PARKING DEMAND ANALYSIS .....	12
3.2.1 Existing and Proposed Conditions .....	13
3.2.2 Construction Period and Honeymoon Period.....	13
3.3 SUMMARY OF PROJECTED CONSTRUCTION PERIOD CONDITIONS .....	19
<b>4. TRAFFIC ANALYSIS.....</b>	<b>20</b>
4.1 METHODOLOGY .....	21
4.1.1 Study Area.....	21
4.1.2 Differences in Project Site Trip Generation from Upper State Street Study .....	22
4.2 SCENARIO 1 - EXISTING TRAFFIC CONDITIONS .....	23
4.3 SCENARIO 2 - EXISTING PLUS PROJECT TRAFFIC CONDITIONS .....	24
4.4 SCENARIO 3 - POTENTIAL BASELINE TRAFFIC CONDITIONS .....	27
4.5 SCENARIO 4 - POTENTIAL BASELINE PLUS PROJECT TRAFFIC CONDITIONS.....	29
4.6 SCENARIO 5 - FUTURE (2016) CUMULATIVE TRAFFIC CONDITIONS .....	30
4.7 SCENARIO 6 - FUTURE (2016) CUMULATIVE PLUS PROJECT TRAFFIC CONDITIONS .....	31
4.8 RECOMMENDED MITIGATION .....	33

## List of Tables

TABLE 1: ANALYSIS INTERSECTION VOLUME TO CAPACITY RATIOS AND LEVELS OF SERVICE FOR ALL SCENARIOS .....	3
TABLE 2: EXISTING SITE LAND USE.....	4
TABLE 3: PROPOSED SITE LAND USE (EXCLUSIVE OF CONDOMINIUMS) .....	4
TABLE 4: EXISTING SITE TRIP GENERATION .....	5
TABLE 5: SUPERMARKET TRIP GENERATION ESTIMATES FROM VARIOUS STUDIES.....	5
TABLE 6: WHOLE FOODS MARKET TRIP GENERATION ESTIMATES FROM VARIOUS STUDIES.....	6
TABLE 7: WHOLE FOODS MARKET TRIP GENERATION DERIVED FROM NUMBER OF TRANSACTIONS .....	6
TABLE 8: TRIP GENERATION ESTIMATES FOR OTHER PROJECT SITE LAND USES .....	7
TABLE 9: PASS-BY ESTIMATES FROM VARIOUS SOURCES .....	8
TABLE 10: EXISTING USES .....	10
TABLE 11: PROPOSED USES.....	10
TABLE 12: RECOMMENDED TRIP GENERATION RATES FOR PROPOSED PROJECT .....	11
TABLE 13: EXISTING SITE TRIP GENERATION .....	13
TABLE 14: PROPOSED SITE TRIP GENERATION.....	13
TABLE 15: CONSTRUCTION PHASE ONE TRIP GENERATION .....	14
TABLE 16: CONSTRUCTION PHASE ONE SHARED PARKING ANALYSIS (WEEKDAY).....	15
TABLE 17: CONSTRUCTION PHASE TWO TRIP GENERATION .....	15
TABLE 18: CONSTRUCTION PHASE TWO SHARED PARKING ANALYSIS (SATURDAY).....	16
TABLE 19: CONSTRUCTION PHASE THREE TRIP GENERATION .....	17
TABLE 20: CONSTRUCTION PHASE THREE SHARED PARKING ANALYSIS (SATURDAY).....	17
TABLE 21: HONEYMOON PERIOD TRIP GENERATION.....	18
TABLE 22: HONEYMOON PERIOD SHARED PARKING ANALYSIS (SATURDAY) .....	18
TABLE 23: ANALYSIS INTERSECTION VOLUME TO CAPACITY RATIOS AND LEVELS OF SERVICE FOR ALL SCENARIOS...	20
TABLE 24: EXISTING ANALYSIS INTERSECTION VOLUME TO CAPACITY RATIOS AND LEVELS OF SERVICE .....	24
TABLE 25: PROPOSED LAND USES AND ESTIMATED ITE TRIP GENERATION .....	25
TABLE 26: ESTIMATED FUTURE ITE TRIP GENERATION COMPARED TO ESTIMATED EXISTING ITE TRIP GENERATION ..	25
TABLE 27: EXISTING WITH PROJECT ANALYSIS INTERSECTION VOLUME TO CAPACITY RATIOS AND LEVELS OF SERVICE .....	26
TABLE 28: POTENTIAL BASELINE SCENARIO ANALYSIS INTERSECTION VOLUME TO CAPACITY RATIOS AND LEVELS OF SERVICE .....	28
TABLE 29: POTENTIAL BASELINE PLUS PROJECT SCENARIO ANALYSIS INTERSECTION VOLUME TO CAPACITY RATIOS AND LEVELS OF SERVICE .....	29
TABLE 30: FUTURE (2016) CUMULATIVE SCENARIO ANALYSIS INTERSECTION VOLUME TO CAPACITY RATIOS AND LEVELS OF SERVICE .....	31
TABLE 31 FUTURE (2016) CUMULATIVE PLUS PROJECT SCENARIO ANALYSIS INTERSECTION VOLUME TO CAPACITY RATIOS AND LEVELS OF SERVICE.....	32

## 1. Summary of Results

The purpose of the Whole Foods Trip Generation Review and Traffic Analysis Study is to analyze the proposed project, determine any impacts resulting from the project, and provide recommendations for appropriate mitigation. Section One provides a summary of results and Section Two through Four provide the detailed analysis, methodology, and results.

### 1.1 Trip Generation Summary

The following trip generation assumptions were used in this traffic study:

#### 1.1.1 Trip Generation

There are three trip generation totals used for the project site in the six analysis scenarios:

- *Existing trip generation (158 trips)* – As shown in Table 4 (Section Two), the existing site trip generation was derived from existing driveway counts, which are then adjusted via the application of Institute of Transportation Engineers (ITE) average pass-by rates.
- *Potential baseline trip generation (225 trips)* – This is the trip generation estimated if the current uses on the site operated in accordance with average ITE trip generation rates. As shown in Table 12 (Section Two), the potential baseline trip generation was derived from the application of ITE average trip generation rates, a 13 percent internal capture rate, and ITE average pass-by rates to existing land uses. This was the site trip generation used for scenario three: potential baseline traffic conditions and scenario five: future (2016) cumulative traffic conditions.
- *Estimated future trip generation (407 trips)* – This is the trip generation of the proposed project. As shown in Table 13 (Section Two), the estimated future trip generation was derived from the application of ITE average trip generation rates, a 13 percent internal capture rate, and ITE average pass-by rates to proposed project land uses. This was the site trip generation used for scenario two: existing plus project traffic conditions, scenario four: potential baseline plus project traffic conditions, and scenario six: future (2016) cumulative plus project traffic conditions.

#### 1.1.2 Construction Period Parking Demand

Parking demand for Construction Phase One and the Honeymoon Period are projected to exceed parking supply. In order to mitigate the lack of parking supply, parking management must be employed on site during peak demand periods of these phases if adequate parking is to be available onsite. Techniques to mitigate the shortage in parking supply during these times are:

- Use of employee parking for patrons (employees would park offsite)
- Parking duration restrictions
- Valet parking in tandem configurations
- Additional offsite parking available for patrons

### 1.2 Traffic Analysis Results Summary

Overall, technical analysis was conducted for six traffic model scenarios. A summary of each of the scenarios is below:

*Scenario 1 - "Existing Traffic Conditions"* at area intersections during the PM peak-hour traffic based on intersection turning movement counts conducted for the Upper State Street study.

*Scenario 2 - "Existing Traffic Conditions with Proposed Project"* includes the existing PM peak-hour traffic based on intersection turning movement counts conducted for the Upper State Street study as well as the estimated trip generation of the proposed project.

*Scenario 3 - "Potential Baseline Traffic Conditions"* which includes Existing Traffic Conditions plus potential additional traffic trips that could be generated within existing buildings if low trip-generating land uses intensified up to ITE trip-generating levels.

*Scenario 4 - "Potential Baseline Traffic Conditions with Proposed Project"* which includes Existing Traffic Conditions plus potential additional traffic trips that could be generated within existing buildings if low trip-generating land uses intensified up to ITE trip-generating levels, as well as the estimated trip generation of the proposed project.

*Scenario 5 - "Potential Future Cumulative Traffic Conditions"* which includes potential additional traffic trips through the year 2016 from Approved and Pending development projects in the surrounding City and County areas that would intensify land uses and send additional traffic to area intersections and a 0.25 percent ambient annual background traffic growth rate (2.5% total ambient growth), and the estimated trip generation of the existing project site trip generation.

*Scenario 6 - "Potential Future Cumulative Traffic Conditions with Proposed Project"* which includes potential additional traffic trips through the year 2016 from Approved and Pending development projects in the surrounding City and County areas that would intensify land uses and send additional traffic to area intersections, a 2.5% total ambient traffic growth rate, and the estimated trip generation of the proposed project.

Project traffic is forecasted to utilize the currently impacted intersection of Las Positas Road at Calle Real causing a project-related impact at that intersection. In addition, the estimated traffic generated from the proposed project is forecasted to utilize Las Positas Road/San Roque Road at State Street which is impacted under future (2016) cumulative conditions because it is projected to exceed the City of Santa Barbara's California Environmental Quality Act intersection volume to capacity ratio threshold of 0.77. The volume to capacity ratios and levels of service for these intersections in all analysis scenarios can be seen in Table 1, the summary of the volume to capacity ratios and levels of service for the analysis intersections in the study area.

**Table 1: Analysis Intersection Volume to Capacity Ratios and Levels of Service  
for All Scenarios**

Intersection	Scenario 1: Existing PM		Scenario 2: Existing With Project PM			Scenario 3: Baseline PM		Scenario 4: Baseline With Project PM			Scenario 5: Cumulative PM		Scenario 6: Cumulative PM Plus Project		
	V/C	LOS	V/C	LOS	V/C Δ	V/C	LOS	V/C	LOS	V/C Δ	V/C	LOS	V/C	LOS	V/C Δ
1 Highway 154 at Calle Real	0.60	A	0.60	A	0.00	0.60	A	0.60	A	0.00	0.65	B	0.65	B	0.00
2 Highway 154 at Highway 101 SB On-Ramp	0.46	A	0.46	A	0.00	0.46	A	0.46	A	0.00	0.49	A	0.49	A	0.00
3 Highway 101 Off-Ramp at State Street	0.68	B	0.69	B	0.01	0.69	B	0.69	B	0.00	0.71	C	0.72	C	0.01
4 Highway 154 at State Street	0.52	A	0.52	A	0.00	0.52	A	0.52	A	0.00	0.54	A	0.54	A	0.00
5 Highway 101 NB Off-Ramp at State Street	0.64	B	0.64	B	0.00	0.64	B	0.64	B	0.00	0.66	B	0.67	B	0.01
6 La Cumbre Road at State Street	0.70	B	0.71	C	0.01	0.72	C	0.73	C	0.01	0.74	C	0.74	C	0.00
7 Plaza Avenue at State Street	0.63	B	0.64	B	0.01	0.63	B	0.64	B	0.01	0.64	B	0.65	B	0.01
8 Hope Avenue at State Street	0.72	C	0.74	C	0.02	0.73	C	0.74	C	0.01	0.74	C	0.75	C	0.01
9 Hitchcock Way at State Street	0.71	C	0.73	C	0.02	0.73	C	0.74	C	0.01	0.74	C	0.76	C	0.02
10 Ontare Road at State Street	0.61	B	0.61	B	0.00	0.61	B	0.62	B	0.01	0.63	B	0.63	B	0.00
11 Broadmoor Plaza at State Street	0.66	B	0.66	B	0.00	0.66	B	0.67	B	0.01	0.68	B	0.68	B	0.00
12 Las Positas Road/San Roque Road at State St.	0.75	C	0.76	C	0.01	0.76	C	0.76	C	0.00	<b>0.78</b>	C	<b>0.78</b>	C	0.00
13 De la Vina Street at State Street	0.50	A	0.51	A	0.01	0.51	A	0.51	A	0.00	0.52	A	0.52	A	0.00
14 Calle Laureles at State Street	0.49	A	0.49	A	0.00	0.50	A	0.50	A	0.00	0.51	A	0.51	A	0.00
15 Alamar Avenue at State Street	0.58	A	0.59	A	0.01	0.59	A	0.59	A	0.00	0.61	B	0.62	B	0.01
16 Alamar Avenue at Foothill Road	0.61	B	0.61	B	0.00	0.61	B	0.61	B	0.00	0.64	B	0.64	B	0.00
17 La Cumbre Road at Plaza Ave	0.69	B	0.69	B	0.00	0.70	B	0.70	B	0.00	0.72	C	0.72	C	0.00
18 La Cumbre Road at Calle Real	0.65	B	0.66	B	0.01	0.66	B	0.67	B	0.01	0.68	B	0.68	B	0.00
19 La Cumbre Road at Highway 101 SB ramps	0.52	A	0.53	A	0.01	0.54	A	0.54	A	0.00	0.55	A	0.55	A	0.00
20 Hope Avenue at Calle Real	0.65	B	0.66	B	0.01	0.66	B	0.66	B	0.00	0.68	B	0.68	B	0.00
21 Hitchcock Way at Calle Real	0.46	A	0.49	A	0.03	0.48	A	0.50	A	0.02	0.47	A	0.50	A	0.03
22 Calle Real at Highway 101 NB On-Ramp	0.74	C	0.74	C	0.00	0.74	C	0.74	C	0.00	0.75	C	0.76	C	0.01
23 Las Positas Road at Calle Real	<b>0.79</b>	C	<b>0.80</b>	C	0.01	<b>0.80</b>	C	<b>0.80</b>	C	0.00	<b>0.82</b>	D	<b>0.82</b>	D	0.00
24 Las Positas Road at Highway 101 SB Ramps	0.70	B	0.70	B	0.00	0.70	B	0.70	B	0.00	0.73	C	0.73	C	0.00

Notes: V/C - Volume-to-Capacity ratio

LOS = Level of Service (A = 0.00 to 0.60, B = 0.61 to 0.70, C = 0.71 to 0.80, D = 0.81 to 0.90, E = 0.90 to 1.00, F > 1.00)

No physical or operational improvements have been included in the calculation of the future year V/C values.

Intersections in bold print have V/C ratios equal to or higher than the CEQA threshold of 0.77

City of Santa Barbara acceptable V/C limit is LOS C or 0.80.

Since additional estimated traffic generated from the proposed project will utilize impacted intersections, it is recommended that the signal phasing improvements, as identified in the Upper State Street Traffic Study, are implemented as project mitigation actions at these locations.

- The improvement at Las Positas Road at Calle Real recommended in the Upper State Street Traffic Study is altering signal phasing to include eastbound and southbound overlapping right-turn phasing. This would improve the future cumulative with project conditions intersection volume to capacity ratio from 0.82 to 0.72.
- The improvement of Las Positas Road/San Roque Road at State Street recommended in the Upper State Street Traffic Study is altering signal phasing to include northbound overlapping right-turn phasing. This would improve the future cumulative with project conditions intersection volume to capacity ratio from 0.78 to 0.69.

## 2. Trip Generation Assumptions

The proposed project trip generation estimates will be compared to the existing site trip generation estimates to determine the marginal increase or decrease in trips due to the change in land use.

Section two of the Whole Foods Traffic Study includes:

- Literature and technical search for information on trip rates and traffic patterns for Whole Foods sites in other cities; as well as information on total project site trip generation and pass-by trip rates.
- Conducting a peer review of Associated Traffic Engineers traffic study of the project including trip rate and distribution methodology.
- Recommendations of trip generation rates and pass-by trip rates.

### Project Site

The project site is located at the corner of State Street and Hitchcock Way. The existing land uses on the site are listed in Table 2.

**Table 2: Existing Site Land Use**

<b>Building/Use</b>	<b>Size: Square Footage / Seats</b>
Circuit City	23,500 SF
Citibank	7,226 SF
Retail	12,256 SF
Office	13,738 SF
Taco Bell	72 Seats
<b>Total</b>	<b>56,720 SF and 72 Seats</b>

The proposed land uses (exclusive of 15 condominiums) for the project site are listed in Table 3.

**Table 3: Proposed Site Land Use (exclusive of condominiums)**

<b>Building/Use</b>	<b>Size: Square Footage/ Units</b>
Whole Foods	44,579 SF
Circuit City	21,412 SF
Shops	2,936 SF
Citibank	4,392 SF
Retail	1,204 SF
Condominiums	15 Units
<b>TOTAL</b>	<b>74,523 SF and 15 Units</b>

Institute of Transportation Engineers (ITE) trip generation rates are based on gross floor area for most land uses; however gross leasable area is used in determining trip generation for retail centers. For the purpose of the trip generation calculations, gross square footage will be used; except for the retail shop component of the project site, where net square footage will be used.



## 2.1 Trip Generation

### 2.1.1 Driveway Counts and Existing Trip Generation

As part of the Upper State Street Study, driveway surveys were conducted so that actual trip generation could be compared against ITE average rates for various types of land uses. The project site driveways (the Taco Bell driveways and the shopping center driveways on Upper State Street and Hitchcock Way) were counted. PM peak counts were conducted from 4:00 p.m. to 6:00 p.m., on a typical weekday in June 2006. A field crew observed and counted each vehicle entering and exiting from driveways. Where non-site traffic also used the driveway for access, the vehicles were observed into the site and only those that stopped at the target land use were counted.

The driveway counts taken at this site (the Taco Bell and shopping center driveways) in the PM peak hour totaled 232 vehicles. Given the existing land uses and ITE pass-by rates (50 percent for the Taco Bell Site and 29 percent for the shopping center site), this site is expected to generate 158 actual trips (driveway counts minus pass-by trips) as shown in Table 4.

**Table 4: Existing Site Trip Generation**

Building/Use	Pass-by Reduction	PM Peak Hour			PM Peak Hour		
		Existing Driveway Counts			Existing Trip Generation (with Pass-by Reductions)		
		In	Out	Total	In	Out	Total
Taco Bell Site	50%	14	18	32	7	9	16
Shopping Center Site	29%	88	112	200	62	80	142
TOTAL TRIPS		102	130	232	69	89	158

### 2.1.2 Traffic Literature and Technical Search of Whole Foods Sites

The literature and technical search included information for trip generation characteristics based on industry standards and other Whole Foods Traffic Studies. Trip generation rates for supermarkets based on survey data from the ITE Trip Generation 7th Edition and the San Diego Association of Governments (SANDAG) traffic generators was obtained and are presented in Table 5.

**Table 5: Supermarket Trip Generation Estimates from Various Studies**

Methodology	Source	Date	Size	Trip Generation per KSF		
				Daily	AM	PM
ITE Trip Generation 7th Edition, average rate of supermarket surveys	ITE Trip Generation Land Use 850	2004	n/a	102.24	3.25	10.45
ITE Trip Generation 7th Edition, fitted curve rate based on supermarket surveys	ITE Trip Generation Land Use 850	2004	44,579	98.17	3.45	11.06
San Diego Association of Governments Supermarket survey data	San Diego Traffic Generators, April 2002	April 2002	n/a	160.00	6.91	16.77
San Diego Association of Governments Supermarket survey data	San Diego Traffic Generators, December 1996	December 1996	n/a	150.00	6.00	15.00

As shown in Table 5, daily trip rates range from 98 to 160 trips per thousand square feet (KSF), AM peak hour trips range from 3.25 to 6.91 trips per thousand square feet, and PM peak hour trips range from 10.45 to 16.77 trips per thousand square feet.

Trip generation from traffic studies of proposed developments with Whole Foods Markets in Burbank, San Jose, San Rafael and Austin, Texas were obtained. The trip generation values are listed in Table 6. The daily trip rate ranges from 102.24 to 126.33 trips per thousand square feet (KSF), AM peak hour trips range from 3.25 to 11.33 trips per thousand square feet, and PM peak hour trips range from 10.32 to 19.00 trips per thousand square feet.

**Table 6: Whole Foods Market Trip Generation Estimates from Various Studies**

Methodology	Source	Date	Size	Trip Generation per KSF		
				Daily	AM	PM
ITE 850 Supermarket: fitted curve	Burbank Whole Foods Traffic Study	January 10, 2007	60,000	111.51	4.15	10.68
City of San Jose Neighborhood Commercial	San Jose Whole Foods Traffic Study	May 2007	44,000	120.00	4.80	13.20
ITE 850 Supermarket average rate	Novato Whole Foods Traffic Study	August 22, 2005	53,675	102.24	3.25	10.45
ITE 850 Supermarket: fitted curve	San Rafael Whole Foods Traffic Study	-	-	111.53	3.26	10.32
Whole Foods Expansion of 3000 ft	San Rafael Whole Foods Expansion	-	-	n/a	11.33	19.00
City of Austin Data	Austin, TX	April 1, 1999	30,080	126.33	n/a	13.03

Information on estimated transactions per week at current and proposed Whole Foods Markets was provided by Whole Foods in a March 6, 2007 memo. This information was converted into trip rates per thousand square feet based on the percentage of transactions per average weekday and are shown in Table 6. Using transaction data as a surrogate for trips, the average weekday trips generated from Whole Foods Markets ranged from 62.04 to 99.76 per KSF.

**Table 7: Whole Foods Market Trip Generation Derived from Number of Transactions**

Store Number	Store	KSF	Transactions per Week	Transactions per Weekday (a) (b)	Trips per Weekday (c)	Daily Trips per KSF	AM Peak Trips per KSF (d)	PM Peak Trips per KSF (d)
10154	Redwood City	40.42	16800	2016	4032	99.76	3.19	10.27
10204	Thousand Oaks	35.25	14500	1740	3480	98.72	3.16	10.17
10178	Valencia	38.90	11500	1380	2760	70.95	2.27	7.31
10105	Torrance	53.00	13700	1644	3288	62.04	1.99	6.39
	Los Altos	54.00	19700	2364	4728	87.56	2.80	9.02

(a) Per Whole Food information, sales are split 60 percent during the weekdays and 40 percent on weekends

(b) Number of transactions per weekday are the number of transactions per week x 60 percent / 5 days per week

(c) Assumes two trips per transaction (one inbound, one outbound)

(d) AM and PM peaks use ITE percentages of AM rate/daily rate ( $3.25/102.24=3.2\%$ ) and PM (10.3%) peak hours share of ADT

Based on the data in Tables 5, 6, and 7 it is recommended that the City use the ITE Trip Generation Land Use 850 fitted curve methodology for the PM peak hour analysis as it is close to and, in fact, slightly higher than three of the five noted Whole Foods traffic studies and it is the recommended ITE methodology.

### 2.1.3 Trip Generation Rate for Other Project Site Land Uses

The trip generation rates for the other project site land uses were determined by using the ITE Trip Generation 7th Edition average rates. The methodology for each land use is as follows:

- Circuit City: Electronics Superstore (ITE Land Use 863)

- Retail Shops: Specialty Retail Center (ITE Land Use 814)
- Citibank: Walk-in Bank (ITE Land Use 911)
- Condominium: Residential Condominium/Townhouse (ITE Land Use 230)

The recommended trip generation rates for the proposed land uses on the proposed site other than the proposed whole foods market are listed in Table 8.

**Table 8: Trip Generation Estimates for Other Project Site Land Uses**

Land Use	Methodology	Unit	Daily	AM Peak	PM Peak
Circuit City	ITE 863 Average Rate	KSF Gross Floor Area	45.04	3.46	4.5
Retail	ITE 814 Average Rate	KSF Gross Leasable Area	44.32	1.03*	2.71
CitiBank	ITE 911 Average Rate	KSF Gross Floor Area	156.48	4.07	33.15
Condominium	ITE 230 Average Rate	Unit	5.86	0.44	0.52

*No AM Peak hour data exists for ITE Specialty Retail Centers, so the rate for Shopping Centers (ITE 820) was used.*

### Internal Capture

ITE trip generation rates are based on data collected at single-use, free-standing sites. While the trip generation rates for individual uses on mixed-use sites may be the same or similar to what they are for free-standing sites, there is potential for interaction among those uses within the mixed-use site. Trips made among land uses in a single site are considered internal capture to the site. In order to determine the proper trip generation for the multi-use site, an internal capture rate in the form of a percentage of internal capture is applied to each individual land use to account for trips internal to sites.

The proposed development meets the description of a multi-use development according to ITE:

- Typically planned as a single real-estate project
- Typically between 100,000 and 2 million square feet in size
- Contains two or more land uses
- Some trips are between on-site land uses
- Trips between land uses do not travel on major street system

The ITE Trip Generation Handbook includes data from a study that conducted interviews to determine whether persons entering and leaving multi-use sites came there for multiple purposes. The results are listed in Table C.19 Percentages of Persons within Multi-Sites by Number of Purposes (Stops) and by Primary Destination; the average percentage of single purpose trips was 77 percent, the average percent of dual purpose trips was 16 percent, and the average percentage of three or more purpose trips was seven percent. We recommend that these percentages be applied to the trip generation rates for the project site as follows:

- 77 percent of the trips generated by the project site are primary trips where no internal capture percentage is applied (the person visits only one land use)
- 16 percent of the trips generated by the project site have dual purposes on the project site and they will be reduced by 50 percent (the person visits two land uses)
- Seven percent of the trips generated by the project site have three or more purposes and will be reduced by 70 percent (the person visits three or more land uses)

When these percentages are combined, they represent internal capture rate of 13 percent for retail centers. It is recommended that an internal capture rate of 13 percent be applied to the commercial center portion of the project site trip generation. The Taco Bell does not have an internal capture reduction because it has a separate driveway and parking area and thus does not "share" trips.

### Pass-By Reduction

Pass-by reductions are meant to reflect trips that would otherwise pass the site on the adjacent road, and therefore represent existing traffic on the adjacent roadway. These trips are not specifically destined to visit the site; rather they are already on the adjacent road.

The trip reduction for pass-by trips is separate from the reduction of internally captured trips. The internal trips are subtracted out before pass-by trips reductions are applied. Internal capture trips are true reductions of the total site trip generation, while pass-by reductions are used to determine the amount of new traffic added to the street system by the generator.

Pass-by data was collected from three sources: ITE Trip Generation, 7th Edition, SANDAG "(Not So) Brief Guide of Vehicular Traffic Generation Rates for the San Diego Region," and "Refinement of Procedures Used for Estimating Pass-By Trip Percentages" from the 1992 ITE Journal as cited by Associated Transportation Engineers, and two of the other Whole Foods Market traffic studies where pass-by reductions were applied.

**Table 9: Pass-by Estimates from Various Sources**

Land Use	ITE Code	Land Use	ITE 7th Edition	San Diego Trip Generators	ITE Journal 1991	ITE Journal 1992	City of Los Angeles Guidelines	Burbank Whole Foods Study	San Jose Whole Foods Study
Retail	820	Shopping Center	34%	15%	-	-	40%	-	-
Whole Foods	850	Supermarket	36%	15%	27%	50%	40%	20%	25%
Circuit City	863	Electronics Superstore	40%	15%	-	-	40%	-	-
CitiBank	912	Drive-in Bank	47%	23%	-	-	40%	-	-

As Table 9 demonstrates, pass-by rates vary greatly by source. For supermarkets, the pass-by rates range from 15 percent to 50 percent. Because of the large variation in supermarket pass-by rates, and its importance in determining the expected trip generation for the project site, supermarket pass-by rates will be explored in depth.

### Supermarket Pass-by Rates

Average supermarket pass-by rates vary greatly from survey to survey, however the pass-by percentage of sites within a single survey vary little. This indicates that the methodology used to determine supermarket pass-by rates is more important than the individual site data collected. The ITE Trip Generation 3rd Edition is the most recent peer-reviewed empirical data and therefore represents the most valid average pass-by rate data available.

### Pass-By Rates vs. Diverted Trips and Linked Trips

The main conclusion of the 1992 ITE article<sup>1</sup> was that the only factor that appeared to affect grocery store pass-by trip percentages was the percentage of commercial land use surrounding the site. This was a

<sup>1</sup> Moussavi, M. and Gorman, M. "A Study of Pass-By Trips Associated with Retail Developments," ITE Journal, March 1991

negative relationship, suggesting that grocery stores in commercial areas receive more diverted and multiple destination trips relative to pass-by trips.

The San Diego Traffic Generators report also shows that a high percentage of trips visiting supermarkets are diverted from other supermarkets. This makes sense because the opening of a new supermarket does not fundamentally change the fact that persons living in the area purchase groceries. The distinction between pass-by and diverted trips is that pass-by trips do not involve a route diversion to enter the site driveway, while diverted linked trips add traffic to streets adjacent to a site. Both types of trips may not add to the area's major traffic routes (such as Highway 101).

In order to make assumptions about pass-by and diverted trips to the project site, the supermarkets in the surrounding area and the nature of Whole Foods Markets are assessed. Per the March 6, 2007 memo, Whole Foods states that 80 percent of their customers travel 3 miles or less. Within three miles of the project site there are three clusters of supermarkets: Upper State Street, Hollister Avenue, and downtown Santa Barbara. Along Upper State Street are the following supermarkets:

- Gelson's Market at 3305 State Street between Las Positas Road and Del la Vina Street
- Trader Joe's at 3025 De la Vina Street
- Ralph's at 2840 De La Vina Street
- Vons at 3855 State Street between La Cumbre Road and Hope Avenue
- Albertsons at 3943 State Street between Highway 101 off-ramps and La Cumbre Road

The next two closest clusters of grocery stores are about three miles west along Hollister Avenue (Vons and Ralph's) and approximately three miles to the southeast in downtown Santa Barbara (Vons, Ralph's, and many other smaller markets).

Based on this data, it is reasonable to assume that the proposed Whole Foods will attract some of the current pass-by trips that would otherwise be going to one of the other supermarkets presently located on Upper State Street.

Whole Foods Markets carry many unique products, and items tend to be more expensive when compared to other supermarkets, thereby making Whole Foods Markets more specialized. In addition, Whole Foods Markets have prepared foods for consumption on- and off-site. Both of these factors likely mean Whole Foods has a larger market area and has different types of trips (lunch and dinner trips) when compared to other types of supermarkets. Any patrons using Highway 101 to access the site would use little of Upper State Street. The northbound Highway 101 ramps provide access to the site with little travel on Upper State Street, except for one-half a block.

There are no studies of pass-by rates specifically for "higher-end" markets such as Whole Foods. In the absence of data to support these observations, it is not recommended that a special rate be used for Whole Foods analysis.

The site-specific conditions do not indicate that an abnormally low or abnormally high pass-by rate should be used for the proposed Whole Foods Marketplace. The fact that a number of supermarkets are located on Upper State Street indicate that a high amount of traffic visiting the Whole Foods Market site would have been otherwise traveling to other supermarkets along Upper State Street is tempered by the fact that Upper State Street is not the only regional access to the area. Regional patrons could avoid most of Upper State Street on a visit. This is because northbound regional access to/from would use the Hope Street ramps and would only travel on Upper State Street for one block between Hope Street and the project site, or would

avoid Upper State Street completely by using Hitchcock Way and the proposed driveways of the project site along Hitchcock Way.

Given the data reviewed in the literature and technical search, it is recommended that the average ITE trip generation pass-by rates be used for the proposed commercial center. The ITE average pass-by rate of 36 percent is recommended because 1) it is the most valid source for pass-by data and 2) transaction data indicates that Whole Foods trip generation rates are very similar to ITE rates, thus it is reasonable to assume ITE pass-by rates may also be the best source of pass-by adjustment as well. Furthermore, the average ITE Trip Generation 7th Edition pass-by rates fall reasonably within the range of the cited pass-by rates in Table 11.

### Summary of Recommended Trip Generation

The summary of the recommended trip generation rates, internal capture reductions, and pass-by reductions for the existing uses and proposed uses are shown in Table 10 and Table 11 respectively. The estimated existing trip generation of the site is 225 PM peak hour trips. The estimated proposed project trip generation is 407 PM peak hour trips: 182 more PM peak hour trips when compared to estimated existing site trip generation.

**Table 10: Existing Uses**

Building/Use	ITE Code Trip Generation Code	PM Trip Generation Rates	Square Footage / Units of Land Use	PM Trip Generation of Stand-Alone Land Uses	Internal Capture Reduction (13%)	Estimated Trip Generation Pass-By Reduction	
						Pass-By Percentage	Trip Generation
Taco Bell	934	0.94	72	68	68	50%	34
Citibank	911	33.15	7.2	240	208	47%	110
Office	710	1.49	13.7	20	18	0%	18
Office/Retail	814	2.71	12.3	33	29	34%	19
Circuit City	863	4.5	18.9	85	74	40%	44
<b>TOTAL</b>				<b>446</b>	<b>397</b>		<b>225</b>

**Table 11: Proposed Uses**

Building/Use	ITE Code Trip Generation Code	PM Trip Generation Rates	Square Footage / Units of Land Use	PM Trip Generation of Stand-Alone Land Uses	Internal Capture Reduction (13%)	Estimated Trip Generation Pass-By Reduction	
						Pass-By Percentage	Trip Generation
Whole Foods	850	11.06	44.6	493	429	36%	275
Circuit City	863	4.5	21.4	96	84	40%	50
Shops	814	2.71	2.9	8	7	34%	5
Citibank	911	33.15	4.4	146	127	47%	68
Retail	814	2.71	1.2	3	3	34%	2
Condominiums	230	0.52	15	8	7	0%	7
<b>TOTAL</b>				<b>754</b>	<b>657</b>		<b>407</b>

### 2.3 Summary of Trip Generation Assumption Recommendations

Based on the review of the trip generation estimates for the proposed project site, the following recommendations are made:

**Trip Generation**

- ITE Trip Generation Land Use 850 fitted curve methodology should be used for the Whole Foods Market trip generation calculations
- ITE average trip generation rates should be used for the other project land uses
- Average ITE trip generation pass-by rates should be used for the commercial center
- A 13 percent internal capture reduction of project site trip generation should be used

**Table 12: Recommended Trip Generation Rates for Proposed Project**

Building/Use	ITE Code Trip Generation Code	PM Trip Generation Rates	Square Footage / Units of Land Use	PM Trip Generation of Stand-Alone Land Uses	Internal Capture Reduction (13%)	Estimated Trip Generation Pass-By Reduction	
						Pass-By Percentage	Trip Generation
Whole Foods	850	11.06	44.6	493	429	36%	275
Circuit City	863	4.5	21.4	96	84	40%	50
Shops	814	2.71	2.9	8	7	34%	5
Citibank	911	33.15	4.4	146	127	47%	68
Retail	814	2.71	1.2	3	3	34%	2
Condominiums	230	0.52	15	8	7	0%	7
<b>TOTAL</b>				<b>754</b>	<b>657</b>		<b>407</b>

### 3. Construction Period Analysis

The construction period analysis describes the estimated construction period and grand opening traffic operating conditions associated with the proposed Whole Foods development on Upper State Street. The purpose of determining the trip and parking generation for the proposed Whole Foods development during the phased construction period and grand opening “honeymoon” period is to indicate where potential temporary traffic or parking mitigations can be used if necessary.

#### 3.1 Analysis Methodology

The estimated trip generation and estimated parking demand for six site scenarios are analyzed. Those scenarios and their expected duration are shown below:

- Existing Conditions (existing)
- Construction Phase One (approximately six month duration)
- Construction Phase Two (approximately four month duration)
- Construction Phase Three (seven month duration)
- Honeymoon Period (two weeks after opening)
- Proposed Project Conditions (approximately 15 months after construction begins and two weeks after grand opening Honeymoon Period)

#### Trip Generation

For the purposes of this analysis, estimated trip generation was calculated using the recommended methodology from Section 2.1: Trip Generation. Internal capture rates during the construction period were lowered from 13 percent to 5 percent to account for the diminished mix of uses on the site: fewer trips to the site would visit two or more on-site land uses during construction.

#### Parking Demand

For each scenario, parking demand for a non-December Saturday was used, except for Construction Phase One. During Construction Phase One, office uses, which have little weekend demand, are occupied on-site. For this scenario, non-December weekday parking demand was used to calculate the estimated shared parking requirements for the site.

#### 3.2 Trip Generation and Parking Demand Analysis

For each scenario, the difference between the scenario and existing trip generation was determined. During the three construction phases, project site trip generation will be less than existing conditions. For the Honeymoon Period and the Proposed Project Conditions, future project site trip generation will exceed existing site trip generation.

Fewer trips are generated by the site during the construction periods because some uses are open while others are closed during construction; while during and after the Honeymoon Period more trips are generated from the site. Details for each construction phase and the Honeymoon Period are described in the Construction Period and Honeymoon Period Section. The difference from existing site daily trip generation for each future scenario is:

- Construction Phase One: 573 fewer trips
- Construction Phase Two: 906 fewer trips
- Construction Phase Three: 1,100 fewer trips



- Honeymoon Period: 1,660 more trips
- Proposed Project Conditions: 1,328 more trips

Parking demand for each scenario was compared to the amount of parking available. Parking demand for Construction Phase One and the Honeymoon Period are projected to exceed parking supply. In order to mitigate the lack of parking supply, parking management must be employed on site during peak demand periods of these phases if adequate parking is to be available onsite. Techniques to mitigate the shortage in parking supply during these times include, but are not limited to:

- Use of employee parking for patrons (employees would park offsite)
- Valet parking in tandem configurations
- Additional offsite parking available for patrons

### 3.2.1 Existing and Proposed Conditions

#### Existing Conditions

The existing land uses and estimated trip generation are listed in Table 13. Currently, the site is estimated to generate 2,111 daily trips on an average weekday.

**Table 13: Existing Site Trip Generation**

Building/Use	ITE Code	Trip Generation Rates		Square Footage / Units	Unadjusted Trip Generation		Internal Capture Reduction (13%)		Trips with Pass-By Reduction		
		Daily	PM		Daily	PM	Daily	PM	Pass-By	Daily	PM
Taco Bell	934	19.52	0.94	72	1405	68	1405	68	50%	703	34
Citibank	911	156.48	33.15	7.2	1131	240	984	208	47%	521	110
Office	710	11.01	1.49	13.7	151	20	132	18	0%	132	18
Retail	814	44.32	2.71	12.3	543	33	473	29	34%	312	19
Circuit City	863	45.04	4.5	18.9	849	85	739	74	40%	443	44
<b>Total</b>					<b>4080</b>	<b>446</b>	<b>3732</b>	<b>397</b>		<b>2,111</b>	<b>225</b>
Difference from Existing										-	-

#### Proposed Conditions

The proposed land uses and associated trip generation for the project site are listed in Table 14. The site, as proposed, is estimated to generate 3,439 daily trips (1,328 more daily trips than existing) on an average weekday.

**Table 14: Proposed Site Trip Generation**

Building/Use	ITE Code	Trip Generation Rates		Square Footage / Units	Unadjusted Trip Generation		Internal Capture Reduction (13%)		Trips with Pass-By Reduction		
		Daily	PM		Daily	PM	Daily	PM	Pass-By	Daily	PM
Whole Foods	850	98.17	11.06	44.6	4376	493	3807	429	36%	2437	275
Circuit City	863	45.04	4.5	21.4	964	96	839	84	40%	503	50
Shops	814	44.32	2.71	2.9	130	8	113	7	34%	75	5
Citibank	911	156.48	33.15	4.4	687	146	598	127	47%	317	68
Retail	814	44.32	2.71	1.2	53	3	46	3	34%	31	2
Condominiums	230	5.86	0.52	15	88	8	76	7	0%	76	7
<b>Total</b>					<b>6299</b>	<b>754</b>	<b>5480</b>	<b>657</b>		<b>3,439</b>	<b>407</b>
Difference from Existing										<b>1,328</b>	<b>182</b>

### 3.2.2 Construction Period and Honeymoon Period

Construction will occur in three distinct phases. During each phase, certain land uses will be occupied, while others are demolished and/or constructed. In addition, the onsite parking supply will vary in each phase. The Honeymoon Period will occur following the grand opening of the Whole Foods Market. The

other proposed project land uses will be occupied by Construction Phase Three. It was assumed that the condominiums will be fully occupied at the start of the Honeymoon Period.

### Construction Phase One

Phase one of construction is scheduled to last for 176 days. During this phase, the Taco Bell and building adjacent to Circuit City will be demolished and the new Circuit City and new Citibank buildings will be constructed. The following land uses will be occupied during Phase One construction:

#### Existing Land Uses Occupied

- Citibank and Office
- Circuit City
- Retail Shops

#### Proposed Land Uses Occupied

- None

Trip generation calculations for Construction Phase One are in Table 15. The trip generation of the site during this phase of construction is projected to be 1,538 daily trips and 209 PM peak hour trips. This is 573 fewer daily trips than the existing site trip generation.

**Table 15: Construction Phase One Trip Generation**

Building/Use	ITE Code	Trip Generation Rate		Square Footage / Units	Unadjusted Trip Generation		Internal Capture Reduction (13%)		Trips with Pass-By Reduction		
		Daily	PM		Daily	PM	Daily	PM	Pass-By	Daily	PM
Citibank	911	156.48	33.15	7.2	1131	240	1074	228	47%	569	121
Circuit City	863	45.04	4.5	18.9	849	85	807	81	40%	484	48
Retail	814	44.32	2.71	12.3	543	33	516	32	34%	341	21
Office	710	11.01	1.49	13.7	151	20	144	19	0%	144	19
Total					2674	378	2541	359		1,538	209
Difference from Existing										(573)	(16)

During Construction Phase One the site will have 140 parking spaces available. Shared parking calculations of an average weekday were used, as opposed to a weekend analysis in other phases, because of the office uses present on the site. Office uses demand little parking on weekends. Therefore the peak parking demand for the project site during Construction Phase One would be on a weekday. The shared parking analysis estimates a demand of 146 parking spaces during the peak parking demand hour: 2:00 PM to 3:00 PM on an average weekday (see Table 16). The projected parking demand exceeds the parking supply by 6 parking spaces. Potential mitigations such as offsite employee parking should be during considered Construction Phase One, if deemed necessary.

**Table 16: Construction Phase One Shared Parking Analysis (Weekday)**

Time	Land Use 820 - Shopping Center		Land Use 710 - Office Building		Land Use 911 - Walk-in Bank		Land Use 863 - Electronic Superstore		Total Parking Demand
	Percent Occupied	Parking Demand	Percent Occupied	Parking Demand	Percent Occupied	Parking Demand	Percent Occupied	Parking Demand	
7:00 AM	5%	2	15%						2
8:00 AM	18%	6	49%						6
9:00 AM	38%	14	84%		50%	13			26
10:00 AM	53%	19	100%		90%	23			42
11:00 AM	86%	31	100%		85%	21	86%	49	101
12:00 PM	100%	36	88%	34	79%	20	90%	51	141
1:00 PM	98%	35	79%	31	76%	19	96%	55	140
2:00 PM	91%	33	86%	34	91%	23	100%	57	146
3:00 PM	86%	31	96%	37	91%	23	91%	52	143
4:00 PM	81%	29	91%	35	100%	25	88%	50	140
5:00 PM	57%	21	72%	28	84%	21	90%	51	121
6:00 PM	69%	25		0	89%	22	98%	56	103
7:00 PM	82%	30							30
8:00 PM	70%	25							25
9:00 PM	42%	15							15
10:00 PM	10%	4							4
Peak Parking Demand	100%	36	100%	39	100%	25	100%	57	157

**Construction Phase Two**

Phase two of construction is scheduled to take 130 days. At the start of Construction Phase Two, the new Citibank and new retail space adjacent to the Citibank will open. Construction activities during this period will be the continued construction of the new Circuit City building and the demolition of the existing Citibank building. The following land uses will be occupied during Phase Two construction:

**Existing Land Uses Occupied**

- Circuit City
- Retail Shops

**Proposed Land Uses Occupied**

- Citibank
- Retail Shops

Trip generation calculations for Construction Phase Two are in Table 17. The trip generation of the site during this phase of construction is projected to be 1,205 daily trips and 145 PM peak hour trips. This is 906 fewer daily trips than the existing site trip generation.

**Table 17: Construction Phase Two Trip Generation**

Building/Use	ITE Code	Trip Generation Rate		Square Footage / Units	Unadjusted Trip Generation		Internal Capture Reduction (13%)		Trips with Pass-By Reduction		
		Daily	PM		Daily	PM	Daily	PM	Pass-By	Daily	PM
Circuit City	863	45.04	4.5	18.9	851	85	809	81	40%	485	48
Citibank	911	156.48	33.15	4.4	687	146	653	138	47%	346	73
Retail	814	44.32	2.71	1.2	53	3	51	3	34%	33	2
Retail	814	44.32	2.71	12.3	543	33	516	32	34%	341	21
Total					2135	267	2028	254		1,205	145
Difference from Existing										(906)	(81)

Construction Phase Two will have 117 onsite parking spaces available. The shared parking analysis for an average Saturday estimates a demand of 106 parking spaces during the peak parking demand hour: 2:00 PM to 3:00 PM on an average Saturday (see Table 18). The projected parking demand does not exceed the parking supply during Construction Phase Two.

**Table 18: Construction Phase Two Shared Parking Analysis (Saturday)**

Time	Land Use 820 - Shopping Center		Land Use 850 - Supermarket		Land Use 911 - Walk-in Bank		Land Use 863 - Electronic Superstore		Total Parking Demand
	Percent Occupied	Parking Demand	Percent Occupied	Parking Demand	Percent Occupied	Parking Demand	Percent Occupied	Parking Demand	
7:00 AM	15%	6							6
8:00 AM	31%	12							12
9:00 AM	62%	25			50%	5			30
10:00 AM	77%	31			90%	9			40
11:00 AM	92%	37			80%	8	86%	49	94
12:00 PM	100%	40	91%	0	100%	10	90%	51	101
1:00 PM	100%	40	100%	0	80%	8	96%	55	103
2:00 PM	100%	40	95%	0	90%	9	100%	57	106
3:00 PM	85%	34	98%	0			91%	52	86
4:00 PM	69%	28	89%	0			88%	50	78
5:00 PM	54%	22	72%	0			90%	51	73
6:00 PM	69%	28	72%	0			98%	56	84
7:00 PM	54%	22							22
8:00 PM	54%	22							22
9:00 PM	46%	18							18
10:00 PM	31%	12							12
Peak Parking Demand	100%	40	100%		100%	10	100%	57	107

### Construction Phase Three

Phase Three of construction is scheduled to take 203 days. During this phase, new retail shops and new Circuit City building will open and the existing Circuit City building and existing shops will be demolished. The following land uses will be occupied during Phase Three construction:

#### Existing Land Uses Occupied

- None

#### Proposed Land Uses Occupied

- Citibank
- Retail Shops
- Circuit City

Trip generation calculations for Construction Phase Three are in Table 19. The trip generation of the site during this phase of construction is projected to be 1,011 daily trips and 135 PM peak hour trips. This is 1,100 fewer daily trips than the existing site trip generation.

Table 19: Construction Phase Three Trip Generation

Building/Use	ITE Code	Trip Generation Rate		Square Footage / Units	Unadjusted Trip Generation		Internal Capture Reduction (13%)		Trips with Pass-By Reduction		
		Daily	PM		Daily	PM	Daily	PM	Pass-By	Daily	PM
Circuit City	863	45.04	4.5	21.4	964	96	916	92	40%	550	55
Shops	814	44.32	2.71	2.9	130	8	124	8	34%	82	5
Citibank	911	156.48	33.15	4.4	687	146	653	138	47%	346	73
Retail	814	44.32	2.71	1.2	53	3	51	3	34%	33	2
Total					1835	253	1743	241		1,011	135
Difference from Existing										(1,100)	(90)

Construction Phase Three will have 123 total onsite parking spaces onsite. For Construction Phase Three, there will be two separate parking lots onsite: 40 parking spaces for the Citibank building and retail shops and 83 parking spaces for the Circuit City and shops. As shown in Table 20, the shared parking analysis of a typical Saturday indicates that supply will exceed demand for both parking lots: a peak demand of 14 of the 40 parking spaces serving the Citibank portion of the site and a peak demand of 74 of the 83 parking spaces for the Circuit City portion of the site.

Table 20: Construction Phase Three Shared Parking Analysis (Saturday)

Time	Land Use 820 - Shopping Center		Land Use 911 - Walk-In Bank		Bank Subtotal	Land Use 820 - Shopping Center		Land Use 863 - Electronic Superstore		Circuit City Subtotal
	Percent Occupied	Parking Demand	Percent Occupied	Parking Demand		Percent Occupied	Parking Demand	Percent Occupied	Parking Demand	
7:00 AM	15%	1			1	15%	1			1
8:00 AM	31%	1			1	31%	3			3
9:00 AM	62%	2	50%	5	7	62%	6			6
10:00 AM	77%	3	90%	9	12	77%	7			7
11:00 AM	92%	4	80%	8	12	92%	8	86%	56	64
12:00 PM	100%	4	100%	10	14	100%	9	90%	59	68
1:00 PM	100%	4	80%	8	12	100%	9	96%	62	71
2:00 PM	100%	4	90%	9	13	100%	9	100%	65	74
3:00 PM	85%	3			3	85%	8	91%	59	67
4:00 PM	69%	3			3	69%	6	88%	57	63
5:00 PM	54%	2			2	54%	5	90%	59	64
6:00 PM	69%	3			3	69%	6	98%	64	70
7:00 PM	54%	2			2	54%	5			5
8:00 PM	54%	2			2	54%	5			5
9:00 PM	46%	2			2	46%	4			4
10:00 PM	31%	1			1	31%	3			3
Peak Parking Demand	100%	4	100%	10	14	100%	9	100%	65	74

### Honeymoon Period

At the completion of Construction Phase Three, the final land use constructed on the project site will open: the Whole Foods Market. According to Whole Foods, it is expected that there would be a 20% drop in daily sales between the first two weeks of opening and the first year weekly average. This means that during the first two weeks of operation, a Whole Foods Market is expected to generate 20% more traffic compared to regular operation. The estimated Honeymoon Period trip generation and parking demand was calculated by adding 20% to the square footage of the Whole Foods building to forecast the 20% increase in traffic for the duration of the honeymoon period.

Trip generation calculations for the Honeymoon Period are in Table 21. The trip generation of the site during this phase of construction is projected to be 3,771 daily trips, 172 AM peak hour trips and 448 PM peak hour trips. This is 1,660 more daily trips than the existing site trip generation; and 332 more estimated daily trips than generated by the project site after the end of the Honeymoon Period.

Table 21: Honeymoon Period Trip Generation

Building/Use	ITE Code	Trip Generation Rate		Square Footage / Units	Unadjusted Trip Generation		Internal Capture Reduction (13%)		Trips with Pass-By Reduction		
		Daily	PM		Daily	PM	Daily	PM	Pass-By	Daily	PM
Honeymoon Whole Foods (120%)		92.96	10.64	53.5	4973	569	4327	495	36%	2769	317
Circuit City	863	45.04	4.5	21.4	964	96	839	84	40%	503	50
Shops	814	44.32	2.71	2.9	130	8	113	7	34%	75	5
Citibank	911	156.48	33.15	4.4	687	146	598	127	47%	317	68
Retail	814	44.32	2.71	1.2	53	3	46	3	34%	31	2
Condominiums	230	5.86	0.52	15	88	8	76	7	0%	76	7
Total					6896	830	6000	722		3,771	448
Difference from Existing										1,660	223
Difference from Proposed										332	41

The proposed commercial parking available on the project site is 42 employee parking spaces and 243 general parking spaces for a total of 285 parking spaces. As seen in Table 22, the projected shared parking demand for the project site on an average Saturday during the Honeymoon Period is 328 parking spaces, a demand of 43 more parking spaces than are proposed to be available onsite. Parking management of the site during the Honeymoon Period could provide enough parking capacity to meet demand. The use of the 42 employee parking spaces for patrons would relieve most of the demand. However, if the employee parking spaces are tandem, it may be easier to have temporary offsite parking available to patrons. Other parking management techniques such as valet parking for tandem configurations parking should be considered during the Honeymoon Period to avoid onsite parking shortages during peak hours.

Table 22: Honeymoon Period Shared Parking Analysis (Saturday)

Time	Land Use 820 - Shopping Center		Land Use 850 - Supermarket		Land Use 911 - Walk-In Bank		Land Use 863 - Electronic Superstore		Total Parking Demand
	Percent Occupied	Parking Demand	Percent Occupied	Parking Demand	Percent Occupied	Parking Demand	Percent Occupied	Parking Demand	
7:00 AM	15%	2							2
8:00 AM	31%	4							4
9:00 AM	62%	8			50%	5			13
10:00 AM	77%	10			90%	9			19
11:00 AM	92%	12			80%	8	86%	56	76
12:00 PM	100%	13	91%	230	100%	10	90%	59	312
1:00 PM	100%	13	100%	254	80%	8	96%	62	337
2:00 PM	100%	13	95%	241	90%	9	100%	65	328
3:00 PM	85%	11	98%	248			91%	59	319
4:00 PM	69%	9	89%	226			88%	57	292
5:00 PM	54%	7	72%	182			90%	59	248
6:00 PM	69%	9	72%	182			98%	64	255
7:00 PM	54%	7							7
8:00 PM	54%	7							7
9:00 PM	46%	6							6
10:00 PM	31%	4							4
Peak Parking Demand	100%	13	100%	254	100%	10	100%	65	342

### ***3.3 Summary of Projected Construction Period Conditions***

#### **Trip Generation**

The duration of each project phase, as well as the difference from existing site trip generation for each future scenario is shown below.

- Construction Phase One (approximately six months): 573 fewer trips
- Construction Phase Two (approximately four months): 906 fewer trips
- Construction Phase Three (seven months): 1,100 fewer trips
- Honeymoon Period (two weeks after opening): 1,660 more trips
- Proposed Project Conditions (approximately 15 months after construction begins and two weeks after grand opening Honeymoon Period): 1,328 more trips

#### **Parking Demand**

Parking demand for Construction Phase One and the Honeymoon Period are projected to exceed parking supply. In order to mitigate the lack of parking supply, parking management must be employed on site during peak demand periods of these phases if adequate parking is to be available onsite. Techniques to mitigate the shortage in parking supply during these times include:

- Use of employee parking for patrons (employees would park offsite)
- Parking duration restrictions
- Valet parking in tandem configurations
- Additional offsite parking available for patrons

## 4. Traffic Analysis

The traffic analysis of the proposed project summarizes the results of the technical analysis for the Whole Foods Trip Generation Review and Traffic Analysis Study. This encompasses estimated site traffic generation, trip assignment, identifies project-related impacts, and develops mitigation measures.

Table 23 lists the analysis intersection volume to capacity ratios and levels of service for all analysis scenarios. As shown, the intersection of Las Positas Road at Calle Real exceeds the threshold of significance (bolded box in the figure) in all analysis scenarios. The intersection of Las Positas Road/ San Roque Road at State Street exceeds the threshold of significance under potential future cumulative conditions.

**Table 23: Analysis Intersection Volume to Capacity Ratios and Levels of Service for All Scenarios**

Intersection	Scenario 1: Existing PM		Scenario 2: Existing With Project PM			Scenario 3: Baseline PM		Scenario 4: Baseline With Project PM			Scenario 5: Cumulative PM		Scenario 6: Cumulative PM Plus Project		
	V/C	LOS	V/C	LOS	V/C Δ	V/C	LOS	V/C	LOS	V/C Δ	V/C	LOS	V/C	LOS	V/C Δ
1 Highway 154 at Calle Real	0.60	A	0.60	A	0.00	0.60	A	0.60	A	0.00	0.65	B	0.65	B	0.00
2 Highway 154 at Highway 101 SB On-Ramp	0.46	A	0.46	A	0.00	0.46	A	0.46	A	0.00	0.49	A	0.49	A	0.00
3 Highway 101 Off-Ramp at State Street	0.68	B	0.69	B	0.01	0.69	B	0.69	B	0.00	0.71	C	0.72	C	0.01
4 Highway 154 at State Street	0.52	A	0.52	A	0.00	0.52	A	0.52	A	0.00	0.54	A	0.54	A	0.00
5 Highway 101 NB Off-Ramp at State Street	0.64	B	0.64	B	0.00	0.64	B	0.64	B	0.00	0.66	B	0.67	B	0.01
6 La Cumbre Road at State Street	0.70	B	0.71	C	0.01	0.72	C	0.73	C	0.01	0.74	C	0.74	C	0.00
7 Plaza Avenue at State Street	0.63	B	0.64	B	0.01	0.63	B	0.64	B	0.01	0.64	B	0.65	B	0.01
8 Hope Avenue at State Street	0.72	C	0.74	C	0.02	0.73	C	0.74	C	0.01	0.74	C	0.75	C	0.01
9 Hitchcock Way at State Street	0.71	C	0.73	C	0.02	0.73	C	0.74	C	0.01	0.74	C	0.76	C	0.02
10 Ontare Road at State Street	0.61	B	0.61	B	0.00	0.61	B	0.62	B	0.01	0.63	B	0.63	B	0.00
11 Broadmoor Plaza at State Street	0.66	B	0.66	B	0.00	0.66	B	0.67	B	0.01	0.68	B	0.68	B	0.00
12 Las Positas Road/San Roque Road at State St.	0.75	C	0.76	C	0.01	0.76	C	0.76	C	0.00	<b>0.78</b>	C	<b>0.78</b>	C	0.00
13 De la Vina Street at State Street	0.50	A	0.51	A	0.01	0.51	A	0.51	A	0.00	0.52	A	0.52	A	0.00
14 Calle Laureles at State Street	0.49	A	0.49	A	0.00	0.50	A	0.50	A	0.00	0.51	A	0.51	A	0.00
15 Alamar Avenue at State Street	0.58	A	0.59	A	0.01	0.59	A	0.59	A	0.00	0.61	B	0.62	B	0.01
16 Alamar Avenue at Foothill Road	0.61	B	0.61	B	0.00	0.61	B	0.61	B	0.00	0.64	B	0.64	B	0.00
17 La Cumbre Road at Plaza Ave	0.69	B	0.69	B	0.00	0.70	B	0.70	B	0.00	0.72	C	0.72	C	0.00
18 La Cumbre Road at Calle Real	0.65	B	0.66	B	0.01	0.66	B	0.67	B	0.01	0.68	B	0.68	B	0.00
19 La Cumbre Road at Highway 101 SB ramps	0.52	A	0.53	A	0.01	0.54	A	0.54	A	0.00	0.55	A	0.55	A	0.00
20 Hope Avenue at Calle Real	0.65	B	0.66	B	0.01	0.66	B	0.66	B	0.00	0.68	B	0.68	B	0.00
21 Hitchcock Way at Calle Real	0.46	A	0.49	A	0.03	0.48	A	0.50	A	0.02	0.47	A	0.50	A	0.03
22 Calle Real at Highway 101 NB On-Ramp	0.74	C	0.74	C	0.00	0.74	C	0.74	C	0.00	0.75	C	0.76	C	0.01
23 Las Positas Road at Calle Real	<b>0.79</b>	C	<b>0.80</b>	C	0.01	<b>0.80</b>	C	<b>0.80</b>	C	0.00	<b>0.82</b>	D	<b>0.82</b>	D	0.00
24 Las Positas Road at Highway 101 SB Ramps	0.70	B	0.70	B	0.00	0.70	B	0.70	B	0.00	0.73	C	0.73	C	0.00

Notes: V/C - Volume-to-Capacity ratio

LOS = Level of Service (A = 0.00 to 0.60, B = 0.61 to 0.70, C = 0.71 to 0.80, D = 0.81 to 0.90, E = 0.90 to 1.00, F > 1.00)

No physical or operational improvements have been included in the calculation of the future year V/C values.

Intersections in bold print have V/C ratios equal to or higher than the CEQA threshold of 0.77

City of Santa Barbara acceptable V/C limit is LOS C or 0.80.



## 4.1 Methodology

This analysis uses the traffic model developed for the Upper State Street Traffic, Circulation, and Parking Study (February 2007) to forecast trips generated by the proposed project onto the Upper State Street Study area roadway network to determine if there are any significant project roadway impacts due to the proposed project. As in the Upper State Street Study, only the PM peak hour was evaluated as the analysis of the existing conditions indicated that the midday and PM peak hours have very similar traffic operations.

Overall, technical analysis was conducted for six traffic model scenarios. A summary of each of the scenarios is below:

*Scenario 1 - "Existing Traffic Conditions"* at area intersections during the PM peak-hour traffic based on intersection turning movement counts conducted for the Upper State Street study.

*Scenario 2 - "Existing Traffic Conditions with Proposed Project"* includes the existing PM peak-hour traffic based on intersection turning movement counts conducted for the Upper State Street study as well as the estimated trip generation of the proposed project.

*Scenario 3 - "Potential Baseline Traffic Conditions"* which includes Existing Traffic Conditions plus potential additional traffic trips that could be generated within existing buildings if low trip-generating land uses intensified up to ITE trip-generating levels.

*Scenario 4 - "Potential Baseline Traffic Conditions with Proposed Project"* which includes Existing Traffic Conditions plus potential additional traffic trips that could be generated within existing buildings if low trip-generating land uses intensified up to ITE trip-generating levels, as well as the estimated trip generation of the proposed project.

*Scenario 5 - "Potential Future Cumulative Traffic Conditions"* which includes Potential Baseline Traffic Conditions plus potential additional traffic trips through the year 2016 from Approved and Pending development projects in the surrounding City and County areas that would intensify land uses and send additional traffic to area intersections and a 0.25 percent ambient annual background traffic growth rate (2.5% total ambient growth).

*Scenario 6 - "Potential Future Cumulative Traffic Conditions with Proposed Project"* which includes Potential Baseline Traffic Conditions plus potential additional traffic trips through the year 2016 from Approved and Pending development projects in the surrounding City and County areas that would intensify land uses and send additional traffic to area intersections, a 2.5% total ambient traffic growth rate, and the estimated trip generation of the proposed project.

### 4.1.1 Study Area

The study area for this analysis is the same as the Upper State Street Study Area which assessed intersection Levels of Service (LOS) and Volume-to-Capacity (V/C) ratios at the following 24 signalized intersections.

1. Highway 154 and Calle Real
2. Highway 154 and Highway 101 SB On-Ramp
3. Highway 101 SB Off-Ramp and State Street
4. Highway 154 and State Street
5. Highway 101 NB Off-Ramp and State Street
6. La Cumbre Road and State Street
7. Plaza Avenue and State Street

8. Hope Avenue and State Street
9. Hitchcock Way and State Street
10. Ontare Road and State Street
11. Broadmoor Plaza and State Street
12. Las Positas Road/San Roque Road and State Street
13. De la Vina Street and State Street
14. Calle Laureles and State Street
15. Alamar Ave and State Street
16. Alamar Ave and Foothill Road
17. La Cumbre Road and Plaza Avenue
18. La Cumbre Road and Calle Real
19. La Cumbre Road and Highway 101 SB Ramps
20. Hope Avenue at Calle Real
21. Hitchcock Way and Calle Real
22. Calle Real and Highway 101 NB On-Ramp
23. Las Positas Road and Calle Real
24. Las Positas Road and El Camino (Highway 101) SB ramps

Surface street traffic conditions are characterized using Level of Service (LOS) ratings of A through F at signalized intersections. LOS ratings are based on V/C ratios. Volume (V) is the amount of traffic at the intersection compared to Capacity (C), the maximum amount of traffic the intersection is physically designed to accommodate. LOS A (0.00 to 0.60 V/C, up to 60% of capacity) represents the best possible free-flow traffic conditions, and LOS F (1.01+ V/C, or more than 100% of capacity) represents very congested or stopped conditions. Typically, at LOS A the motorist does not experience any delay at intersections, while at LOS E and F the motorist will experience substantial delay and may be forced to wait through multiple signal cycles to get through an intersection.

The City General Plan establishes LOS C as its goal and standard for the maximum acceptable peak-hour intersection congestion level during the heaviest daily travel times. LOS C has a range of 71-80% of capacity (0.71 - 0.80 V/C). At LOS C, progression slows, and motorists often must stop at red lights, and possibly a second red light for some turning movements, before getting through the intersection. In evaluating development proposals for traffic effects, the City uses 0.77 V/C as a standard level for identifying intersections that are close to exceeding the LOS C range during peak travel times, and are therefore considered "impacted" intersections. For the purposes of environmental assessment in the City of Santa Barbara under the California Environmental Quality Act, a signalized intersection is considered impacted if a project causes the Volume to Capacity Ratio to exceed 0.77 V/C or if the project adds trips to an impacted location.

#### **4.1.2 Differences in Project Site Trip Generation from Upper State Street Study**

##### **Proposed Project Land Use Has Been Refined**

Calculations for the proposed trip generation from this site differ from those in the Upper State Street Study due to refinements in the land uses since the Upper State Street Study was undertaken. In the Upper State Street study, the proposed development totaled 70,330 square feet of office and retail space plus 15 condominiums. The current site proposal is for 74,500 square feet of office and retail space plus 15 condominiums.

**Internal Capture Rate**

The trip generation for the site was further refined in this study to include an internal capture rate of 13 percent for both existing and proposed land use. The internal capture rate was not applied to the existing Taco Bell site because it has its own driveway and parking lot.

**Trip Distribution**

Trip distribution for the project site used in this analysis is the same distribution used for the project site in the Upper State Street Study:

- 30 percent to/from 101 South via Hope Avenue inbound and via Hitchcock Way to the La Cumbre Road on-ramp outbound
- 20 percent to/from 101 North via Upper State Street
- 15 percent to/from points east (Downtown) via Upper State Street
- 10 percent to/from SR-154 via Upper State Street to Hope Avenue to Foothill Road
- 5 percent to/from the northwest via Upper State Street
- 5 percent to/from the northeast via Foothill Road to Hope Avenue inbound and via Upper State Street to San Roque Road to Foothill Road outbound
- 5 percent to/from points south via La Cumbre Road to Hope Avenue inbound and Hitchcock Way outbound
- 5 percent to/from points south via Los Positas Road to Calle Real to Hitchcock Way
- 5 percent to/from points west via Hollister Avenue/Upper State Street

**4.2 Scenario 1 - Existing Traffic Conditions**

The existing conditions analysis was based on the Upper State Street Study traffic count data and existing land uses in the corridor. ITE rates were used to determine existing traffic generation at the project site (see Table 10)

Table 24 summarizes the level of service analysis for the Upper State Street area intersections under existing conditions. The results of the capacity analyses show that most of the intersections in the corridor operate at an acceptable LOS based on the City's standards. However, one intersection has a V/C ratio that equals or exceeds the City's impacted intersection criterion of 0.77 during the PM peak hour: Las Positas Road at Calle Real (study intersection #23).

Based on the configuration of the area street system and the development in the corridor this intersection would be expected to have a higher V/C ratio than other study intersections because it is a point of regional access to/from Highway 101. Signal improvements at this location were recommended as part of the Upper State Street Study. These improvements are detailed in the Recommended Mitigation section of this memorandum.

**Table 24: Existing Analysis Intersection Volume to Capacity Ratios and Levels of Service**

Intersection		Scenario 1: Existing PM	
		V/C	LOS
1	Highway 154 at Calle Real	0.60	A
2	Highway 154 at Highway 101 SB On-Ramp	0.46	A
3	Highway 101 Off-Ramp at State Street	0.68	B
4	Highway 154 at State Street	0.52	A
5	Highway 101 NB Off-Ramp at State Street	0.64	B
6	La Cumbre Road at State Street	0.70	B
7	Plaza Avenue at State Street	0.63	B
8	Hope Avenue at State Street	0.72	C
9	Hitchcock Way at State Street	0.71	C
10	Ontare Road at State Street	0.61	B
11	Broadmoor Plaza at State Street	0.66	B
12	Las Positas Road/San Roque Road at State St.	0.75	C
13	De la Vina Street at State Street	0.50	A
14	Calle Laureles at State Street	0.49	A
15	Alamar Avenue at State Street	0.58	A
16	Alamar Avenue at Foothill Road	0.61	B
17	La Cumbre Road at Plaza Ave	0.69	B
18	La Cumbre Road at Calle Real	0.65	B
19	La Cumbre Road at Highway 101 SB ramps	0.52	A
20	Hope Avenue at Calle Real	0.65	B
21	Hitchcock Way at Calle Real	0.46	A
22	Calle Real at Highway 101 NB On-Ramp	0.74	C
23	<b>Las Positas Road at Calle Real</b>	<b>0.79</b>	C
24	Las Positas Road at Highway 101 SB Ramps	0.70	B

*Notes:*

- V/C - Volume-to-Capacity ratio
- LOS = Level of Service A = 0.00 to 0.60, B = 0.61 to 0.70, C = 0.71 to 0.80, D = 0.81 to 0.90, E = 0.90 to 1.00, F > 1.00
- No physical or operational improvements have been included in the calculation of the future year V/C values.
- Intersections in bold print have V/C ratios equal to or higher than the CEQA threshold of 0.77
- City of Santa Barbara acceptable V/C limit is LOS C or 0.80.

### 4.3 Scenario 2 - Existing Plus Project Traffic Conditions

In order to determine the project-specific traffic impacts under existing conditions, existing conditions with the estimated trip generation of the proposed project is compared to without project conditions (Scenario 1). Estimated ITE trip generation of the proposed project site land uses is shown in Table 25.

**Table 25: Proposed Land Uses and Estimated ITE Trip Generation**

Building/Use	ITE Code Trip Generation Code	PM Trip Generation Rates	Square Footage / Units of Land Use	PM Trip Generation of Stand-Alone Land Uses	Internal Capture Reduction (13%)	Estimated Trip Generation	
						Pass-By Reduction	Trip Generation
Whole Foods	850	11.06	44.6	493	429	36%	275
Circuit City	863	4.5	21.4	96	84	40%	50
Shops	814	2.71	2.9	8	7	34%	5
Citibank	911	33.15	4.4	146	127	47%	68
Retail	814	2.71	1.2	3	3	34%	2
Condominiums	230	0.52	15	8	7	0%	7
<b>TOTAL</b>				<b>754</b>	<b>657</b>		<b>407</b>

The proposed land uses are estimated to generate 407 trips in the PM peak hour. As shown in Table 26, this is 182 more PM peak hour trips than are estimated to be currently generated by the project site.

**Table 26: Estimated Future ITE Trip Generation Compared to Estimated Existing ITE Trip Generation**

Project Site	PM Peak Hour		
	Existing ITE Trip Generation	Future ITE Trip Generation	Difference
	Trips	Trips	Trips
Total Project Site	225	407	182

These 182 additional project trips were added to the traffic model to estimate the change in study area intersection levels of service due to the opening of the proposed project. The result of these additional project trips to the operations of the analysis intersections in the existing conditions scenario are shown in Table 27.

**Table 27: Existing With Project Analysis Intersection Volume to Capacity Ratios and Levels of Service**

Intersection		Scenario 1: Existing PM		Scenario 2: Existing With Project PM		
		V/C	LOS	V/C	LOS	V/C Δ
1	Highway 154 at Calle Real	0.60	A	0.60	A	0.00
2	Highway 154 at Highway 101 SB On-Ramp	0.46	A	0.46	A	0.00
3	Highway 101 Off-Ramp at State Street	0.68	B	0.69	B	0.01
4	Highway 154 at State Street	0.52	A	0.52	A	0.00
5	Highway 101 NB Off-Ramp at State Street	0.64	B	0.64	B	0.00
6	La Cumbre Road at State Street	0.70	B	0.71	C	0.01
7	Plaza Avenue at State Street	0.63	B	0.64	B	0.01
8	Hope Avenue at State Street	0.72	C	0.74	C	0.02
9	Hitchcock Way at State Street	0.71	C	0.73	C	0.02
10	Ontare Road at State Street	0.61	B	0.61	B	0.00
11	Broadmoor Plaza at State Street	0.66	B	0.66	B	0.00
12	Las Positas Road/San Roque Road at State St.	0.75	C	0.76	C	0.01
13	De la Vina Street at State Street	0.50	A	0.51	A	0.01
14	Calle Laureles at State Street	0.49	A	0.49	A	0.00
15	Alamar Avenue at State Street	0.58	A	0.59	A	0.01
16	Alamar Avenue at Foothill Road	0.61	B	0.61	B	0.00
17	La Cumbre Road at Plaza Ave	0.69	B	0.69	B	0.00
18	La Cumbre Road at Calle Real	0.65	B	0.66	B	0.01
19	La Cumbre Road at Highway 101 SB ramps	0.52	A	0.53	A	0.01
20	Hope Avenue at Calle Real	0.65	B	0.66	B	0.01
21	Hitchcock Way at Calle Real	0.46	A	0.49	A	0.03
22	Calle Real at Highway 101 NB On-Ramp	0.74	C	0.74	C	0.00
23	<b>Las Positas Road at Calle Real</b>	<b>0.79</b>	<b>C</b>	<b>0.80</b>	<b>C</b>	0.01
24	Las Positas Road at Highway 101 SB Ramps	0.70	B	0.70	B	0.00

## Notes:

- V/C - Volume-to-Capacity ratio
- LOS = Level of Service A = 0.00 to 0.60, B = 0.61 to 0.70, C = 0.71 to 0.80, D = 0.81 to 0.90, E = 0.90 to 1.00, F > 1.00
- No physical or operational improvements have been included in the calculation of the future year V/C values.
- Intersections in bold print have V/C ratios equal to or higher than the CEQA threshold of 0.77
- City of Santa Barbara acceptable V/C limit is LOS C or 0.80.

As is shown in Table 27 the intersection of San Roque/Las Positas and Calle Real is the only intersection to exceed the volume to capacity ratio threshold of 0.77 in the existing conditions scenario with the addition of estimated project trips. The change from existing without project conditions 0.01 in volume to capacity ratio, raising the ratio to 0.80, which is close to exceeding the level of service C range under existing plus project conditions. Since the project adds trips to an impacted intersection, there is a project-related impact at this location under existing with project conditions.

#### ***4.4 Scenario 3 - Potential Baseline Traffic Conditions***

As part of the Upper State Street Study, eight sites were identified as low-trip generators including the proposed project site. If these sites were more active, they could generate additional trips within the corridor without any discretionary permits or redevelopment of the sites. To identify what traffic conditions would be if these sites were generating trips at a rate equal to the ITE average rates, the ITE trip generation for these sites were determined and the number of trips in excess of current trip generation (based on existing driveway counts) were added to the existing traffic model to obtain a potential baseline traffic conditions scenario.

ITE data is developed from numerous (in some cases up to hundreds) empirical field surveys of driveway trip generation throughout the country. These rates are considered to be the best and most complete sources of trip generation rate data that is available, and it is the standard for use in traffic studies nationwide. As part of the Upper State Street Study, ITE standard rates were compared to the empirically collected rates at the project site driveways to determine if any of the Upper State Street developments would be considered to be "low generating" or having a lower than expected trip rate. In the Upper State Street Study, a site was considered to be a low generator from a trip generation standpoint if it generated trips at a rate ten percent or more below the ITE published rate.

Additional trips for the eight low trip-generating sites in the Upper State Street study were added to the existing traffic model. This land use and trip scenario is called the potential baseline scenario. The potential baseline intersection level of service ratings and volume-to-capacity ratios are show in Table 28.

**Table 28: Potential Baseline Scenario Analysis Intersection Volume to Capacity Ratios and Levels of Service**

Intersection		Scenario 1: Existing PM		Scenario 3: Baseline PM	
		V/C	LOS	V/C	LOS
1	Highway 154 at Calle Real	0.60	A	0.60	A
2	Highway 154 at Highway 101 SB On-Ramp	0.46	A	0.46	A
3	Highway 101 Off-Ramp at State Street	0.68	B	0.69	B
4	Highway 154 at State Street	0.52	A	0.52	A
5	Highway 101 NB Off-Ramp at State Street	0.64	B	0.64	B
6	La Cumbre Road at State Street	0.70	B	0.72	C
7	Plaza Avenue at State Street	0.63	B	0.63	B
8	Hope Avenue at State Street	0.72	C	0.73	C
9	Hitchcock Way at State Street	0.71	C	0.73	C
10	Ontare Road at State Street	0.61	B	0.61	B
11	Broadmoor Plaza at State Street	0.66	B	0.66	B
12	Las Positas Road/San Roque Road at State St.	0.75	C	0.76	C
13	De la Vina Street at State Street	0.50	A	0.51	A
14	Calle Laureles at State Street	0.49	A	0.50	A
15	Alamar Avenue at State Street	0.58	A	0.59	A
16	Alamar Avenue at Foothill Road	0.61	B	0.61	B
17	La Cumbre Road at Plaza Ave	0.69	B	0.70	B
18	La Cumbre Road at Calle Real	0.65	B	0.66	B
19	La Cumbre Road at Highway 101 SB ramps	0.52	A	0.54	A
20	Hope Avenue at Calle Real	0.65	B	0.66	B
21	Hitchcock Way at Calle Real	0.46	A	0.48	A
22	Calle Real at Highway 101 NB On-Ramp	0.74	C	0.74	C
23	<b>Las Positas Road at Calle Real</b>	<b>0.79</b>	<b>C</b>	<b>0.80</b>	<b>C</b>
24	Las Positas Road at Highway 101 SB Ramps	0.70	B	0.70	B

*Notes:*

- V/C - Volume-to-Capacity ratio
- LOS = Level of Service A = 0.00 to 0.60, B = 0.61 to 0.70, C = 0.71 to 0.80, D = 0.81 to 0.90, E = 0.90 to 1.00, F > 1.00
- No physical or operational improvements have been included in the calculation of the future year V/C values.
- Intersections in bold print have V/C ratios equal to or higher than the CEQA threshold of 0.77
- City of Santa Barbara acceptable V/C limit is LOS C or 0.80.

As is shown in Table 28, the intersection of San Roque/Las Positas and Calle Real is the only intersection to exceed the volume to capacity ratio threshold of 0.77 in the potential baseline scenario with the addition of potential trips from the lower generating parcels. The change from existing conditions is 0.01 in volume to capacity ratio, raising the ratio to 0.80, which is close to exceeding the level of service C range under potential baseline conditions.



#### 4.5 Scenario 4 - Potential Baseline Plus Project Traffic Conditions

Following City of Santa Barbara traffic analysis guidelines, the estimated trip generation of the proposed project is compared to a potential baseline value for the existing project site that assumes full utilization. The additional estimated ITE trip generation of the proposed project site land uses over the current land uses, 182 trips, were added to the potential baseline traffic model to estimate the change in study area intersection levels of service due to the opening of the proposed project under potential baseline conditions. The result of these additional project trips to the operations of the analysis intersections in the potential baseline scenario are shown in Table 29.

**Table 29: Potential Baseline Plus Project Scenario Analysis Intersection Volume to Capacity Ratios and Levels of Service**

Intersection		Scenario 3: Baseline PM		Scenario 4: Baseline With Project PM		
		V/C	LOS	V/C	LOS	V/C Δ
1	Highway 154 at Calle Real	0.60	A	0.60	A	0.00
2	Highway 154 at Highway 101 SB On-Ramp	0.46	A	0.46	A	0.00
3	Highway 101 Off-Ramp at State Street	0.69	B	0.69	B	0.00
4	Highway 154 at State Street	0.52	A	0.52	A	0.00
5	Highway 101 NB Off-Ramp at State Street	0.64	B	0.64	B	0.00
6	La Cumbre Road at State Street	0.72	C	0.73	C	0.01
7	Plaza Avenue at State Street	0.63	B	0.64	B	0.01
8	Hope Avenue at State Street	0.73	C	0.74	C	0.01
9	Hitchcock Way at State Street	0.73	C	0.74	C	0.01
10	Ontare Road at State Street	0.61	B	0.62	B	0.01
11	Broadmoor Plaza at State Street	0.66	B	0.67	B	0.01
12	Las Positas Road/San Roque Road at State St.	0.76	C	0.76	C	0.00
13	De la Vina Street at State Street	0.51	A	0.51	A	0.00
14	Calle Laureles at State Street	0.50	A	0.50	A	0.00
15	Alamar Avenue at State Street	0.59	A	0.59	A	0.00
16	Alamar Avenue at Foothill Road	0.61	B	0.61	B	0.00
17	La Cumbre Road at Plaza Ave	0.70	B	0.70	B	0.00
18	La Cumbre Road at Calle Real	0.66	B	0.67	B	0.01
19	La Cumbre Road at Highway 101 SB ramps	0.54	A	0.54	A	0.00
20	Hope Avenue at Calle Real	0.66	B	0.66	B	0.00
21	Hitchcock Way at Calle Real	0.48	A	0.50	A	0.02
22	Calle Real at Highway 101 NB On-Ramp	0.74	C	0.74	C	0.00
23	<b>Las Positas Road at Calle Real</b>	<b>0.80</b>	C	<b>0.80</b>	C	0.00
24	Las Positas Road at Highway 101 SB Ramps	0.70	B	0.70	B	0.00

**Notes:**

- V/C - Volume-to-Capacity ratio

- LOS = Level of Service A = 0.00 to 0.60, B = 0.61 to 0.70, C = 0.71 to 0.80, D = 0.81 to 0.90, E = 0.90 to 1.00, F > 1.00

- No physical or operational improvements have been included in the calculation of the future year V/C values.

- Intersections in bold print have V/C ratios equal to or higher than the CEQA threshold of 0.77

- City of Santa Barbara acceptable V/C limit is LOS C or 0.80.

As is shown in Table 29, the intersection of San Roque/Las Positas at Calle Real is the only intersection to exceed the volume to capacity ratio threshold of 0.77 in the potential baseline plus project scenario with the addition of potential trips from the lower generating parcels and the proposed project. The change from existing conditions is 0.01 in volume to capacity ratio, raising the ratio to 0.80, which is close to exceeding the level of service C range under potential baseline plus project conditions. The proposed project is estimated to add nine trips to the impacted intersection of Las Positas Road at Calle Real. Since the project adds trips to an impacted intersection, there is a project-related impact at this location under baseline with project conditions.

#### ***4.6 Scenario 5 - Future (2016) Cumulative Traffic Conditions***

In order to compare the estimated traffic impact of the proposed project in the future (2016), two future cumulative scenarios were analyzed. The future cumulative scenario of the Upper State Street Study included the trip generation of 17 pending projects. For this analysis, the Future (2016) Cumulative Traffic Conditions includes these 17 pending projects, the potential baseline trip generation for the other seven low trip-generation sites from the Upper State Street Traffic Study, and two and one half percent background traffic growth. Two and one half percent ambient traffic growth was added to account for region-wide cumulative development over a ten year period.

As seen in Table 30, the intersections equaling or exceeding the 0.77 V/C impacted intersection criterion are Las Positas Road at Calle Real and Las Positas Road/San Roque Road at State Street.

**Table 30: Future (2016) Cumulative Scenario Analysis Intersection Volume to Capacity Ratios and Levels of Service**

Intersection		Scenario 5: Cumulative PM	
		V/C	LOS
1	Highway 154 at Calle Real	0.65	B
2	Highway 154 at Highway 101 SB On-Ramp	0.49	A
3	Highway 101 Off-Ramp at State Street	0.71	C
4	Highway 154 at State Street	0.54	A
5	Highway 101 NB Off-Ramp at State Street	0.66	B
6	La Cumbre Road at State Street	0.74	C
7	Plaza Avenue at State Street	0.64	B
8	Hope Avenue at State Street	0.74	C
9	Hitchcock Way at State Street	0.74	C
10	Ontare Road at State Street	0.63	B
11	Broadmoor Plaza at State Street	0.68	B
12	Las Positas Road/San Roque Road at State St.	<b>0.78</b>	C
13	De la Vina Street at State Street	0.52	A
14	Calle Laureles at State Street	0.51	A
15	Alamar Avenue at State Street	0.61	B
16	Alamar Avenue at Foothill Road	0.64	B
17	La Cumbre Road at Plaza Ave	0.72	C
18	La Cumbre Road at Calle Real	0.68	B
19	La Cumbre Road at Highway 101 SB ramps	0.55	A
20	Hope Avenue at Calle Real	0.68	B
21	Hitchcock Way at Calle Real	0.47	A
22	Calle Real at Highway 101 NB On-Ramp	0.75	C
23	<b>Las Positas Road at Calle Real</b>	<b>0.82</b>	D
24	Las Positas Road at Highway 101 SB Ramps	0.73	C

*Notes:*

- V/C - Volume-to-Capacity ratio
- LOS = Level of Service A = 0.00 to 0.60, B = 0.61 to 0.70, C = 0.71 to 0.80, D = 0.81 to 0.90, E = 0.90 to 1.00, F > 1.00
- No physical or operational improvements have been included in the calculation of the future year V/C values.
- Intersections in bold print have V/C ratios equal to or higher than the CEQA threshold of 0.77
- City of Santa Barbara acceptable V/C limit is LOS C or 0.80.

**4.7 Scenario 6 - Future (2016) Cumulative Plus Project Traffic Conditions**

The trip generation of the Future (2016) Cumulative Plus Project Scenario, when compared to the Future Cumulative Scenario, is intended to demonstrate the future study area traffic conditions after the opening of the proposed project. The Future (2016) Cumulative Plus Project Scenario includes the assumptions of the Future Cumulative Traffic Conditions scenario as well as the trip generation of the proposed project (182 additional trips over existing project site trip generation).

The Cumulative Plus Project Scenario intersection level of service ratings and volume-to-capacity ratios are shown in Table 31. As shown in Table 31, the intersections of Las Positas Road at Calle Real and Las Positas Road/San Roque Road at State Street are the only study locations to equal or exceed the impacted intersection criterion of a 0.77 V/C ratio. Both locations exceed the impacted intersection criterion under future with cumulative development conditions without the proposed project.

A total of nine additional project site trips generated by the proposed project are estimated to utilize the intersection of Las Positas Road at Calle Real while 31 trips generated by the project site under with project conditions are estimated to utilize the intersection of Las Positas Road/San Roque Road at State Street. Since the project adds trips to impacted intersections, there are project-related impacts at these locations.

**Table 31 Future (2016) Cumulative Plus Project Scenario Analysis Intersection Volume to Capacity Ratios and Levels of Service**

Intersection		Scenario 5: Cumulative PM		Scenario 6: Cumulative PM Plus Project		
		V/C	LOS	V/C	LOS	V/C Δ
1	Highway 154 at Calle Real	0.65	B	0.65	B	0.00
2	Highway 154 at Highway 101 SB On-Ramp	0.49	A	0.49	A	0.00
3	Highway 101 Off-Ramp at State Street	0.71	C	0.72	C	0.01
4	Highway 154 at State Street	0.54	A	0.54	A	0.00
5	Highway 101 NB Off-Ramp at State Street	0.66	B	0.67	B	0.01
6	La Cumbre Road at State Street	0.74	C	0.74	C	0.00
7	Plaza Avenue at State Street	0.64	B	0.65	B	0.01
8	Hope Avenue at State Street	0.74	C	0.75	C	0.01
9	Hitchcock Way at State Street	0.74	C	0.76	C	0.02
10	Ontare Road at State Street	0.63	B	0.63	B	0.00
11	Broadmoor Plaza at State Street	0.68	B	0.68	B	0.00
12	Las Positas Road/San Roque Road at State St.	<b>0.78</b>	C	<b>0.78</b>	C	0.00
13	De la Vina Street at State Street	0.52	A	0.52	A	0.00
14	Calle Laureles at State Street	0.51	A	0.51	A	0.00
15	Alamar Avenue at State Street	0.61	B	0.62	B	0.01
16	Alamar Avenue at Foothill Road	0.64	B	0.64	B	0.00
17	La Cumbre Road at Plaza Ave	0.72	C	0.72	C	0.00
18	La Cumbre Road at Calle Real	0.68	B	0.68	B	0.00
19	La Cumbre Road at Highway 101 SB ramps	0.55	A	0.55	A	0.00
20	Hope Avenue at Calle Real	0.68	B	0.68	B	0.00
21	Hitchcock Way at Calle Real	0.47	A	0.50	A	0.03
22	Calle Real at Highway 101 NB On-Ramp	0.75	C	0.76	C	0.01
23	<b>Las Positas Road at Calle Real</b>	<b>0.82</b>	D	<b>0.82</b>	D	0.00
24	Las Positas Road at Highway 101 SB Ramps	0.73	C	0.73	C	0.00

*Notes:*

- V/C - Volume-to-Capacity ratio
- LOS = Level of Service A = 0.00 to 0.60, B = 0.61 to 0.70, C = 0.71 to 0.80, D = 0.81 to 0.90, E = 0.90 to 1.00, F > 1.00
- No physical or operational improvements have been included in the calculation of the future year V/C values.
- Intersections in bold print have V/C ratios equal to or higher than the CEQA threshold of 0.77
- City of Santa Barbara acceptable V/C limit is LOS C or 0.80.

#### **4.8 Recommended Mitigation**

Analysis for the future with project conditions show that two locations would be expected to operate at a volume to capacity ratio exceeding the City of Santa Barbara's CEQA intersection volume to capacity ratio threshold of 0.77: the intersections of Las Positas Road at Calle Real and Las Positas Road/San Roque Road at State Street. The estimated traffic generated from the proposed project is projected to add additional traffic to these intersections under future (2016) cumulative plus project conditions.

Since additional estimated traffic generated from the project site will utilize impacted intersections, it is recommended that the signal phasing improvements at these locations identified in the Upper State Street Traffic Study are implemented as project mitigation actions.

- The improvement at Las Positas Road at Calle Real recommended in the Upper State Street Traffic Study is altering signal phasing to include eastbound and southbound overlapping right-turn phasing. This would improve the future cumulative with project conditions intersection volume to capacity ratio from 0.82 to 0.72.
- The improvement of Las Positas Road/San Roque Road at State Street recommended in the Upper State Street Traffic Study is altering signal phasing to include northbound overlapping right-turn phasing. This would improve the future cumulative with project conditions intersection volume to capacity ratio from 0.78 to 0.69.